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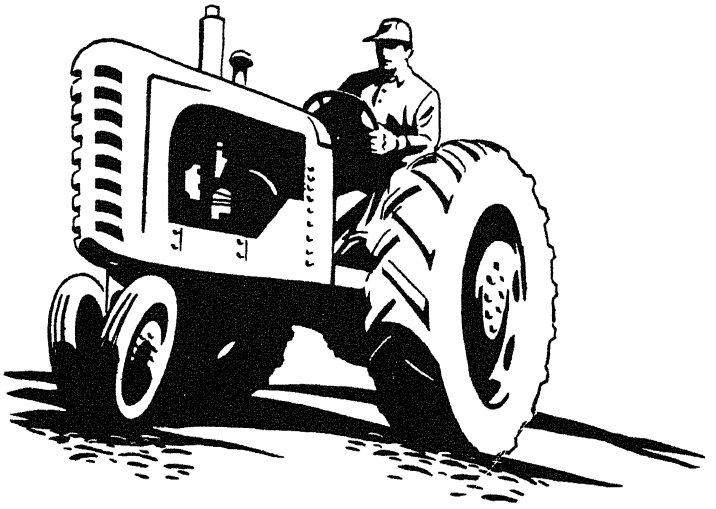

OHIO AGRICULTURAL EXPERIMENT STATION

Wooster, Ohio

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In recent years, more attention has been directed toward the low productivity of human resources in agriculture. The solution to this problem, apparently, must be found in a movement of these resources out of agriculture into secondary and tertiary industries.

The pain of breaking community ties, leaving neighbors and institutions associated with rural living has limited the movement of people out of agriculture. This has occurred even where economic incentives for moving were present in the form of higher paying employment opportunities.

Part-time farming results when farmers combine some farming with nonfarm employment. This combination permits farm families to shift part of their labor resources to more rewarding employment while retaining the community associations they treasure.

Industrialization in or near rural areas of Ohio, together with good roads and rapid automobile transportation, has encouraged the growth of part-time farming. Mechanization of agriculture and new production methods have increased the size of farm needed to provide productive full-time employment for the farm family. These same factors have increased the scale of operations that might be considered "part-time" farm units. In this study, farm operators were considered to be part-time farmers if they spent at least 100 days per year at off-farm work.

In 1930, according to the census of agriculture, about 14 percent of the operators of Ohio farms reported they also worked off the farm 100 days or more. By 1945, this proportion had increased to nearly

27 percent. In 1954, about 37 percent of Ohio farmers worked off the farm 100 days or more.

Other studies[1] of part-time farming in Ohio have indicated its growth to stem from two important sources: (1) former urban residents, seeking the amenities of rural living, moving to small farms and (2) former full-time farmers adding a nonfarm job to their family farming activities. One earlier study dealt with those families who were using part-time farming as a method or process of achieving command of resources to become full-time farmers.[2]

Purpose of Study

This study was undertaken to determine the adjustments made by former full-time farmers who are now operating as part-time farmers. More specifically: (1) What adjustments have been made in the amount of land farmed as part-time operators compared to when they were full-time farmers? (2) How has the intensity of land use changed? (3) Have adjustments resulted in a change in the efficiency of resource use? (4) How does the family income now compare with that in their former situation? (5) What problems have they encountered in making their adjustment?

Description of the Area

The farmers interviewed for this study were residents of Champaign, Miami, and Shelby Counties. These are contiguous west central Ohio counties. This area of fertile soils is a part of the eastern tip of the "Corn Belt" region of the United States.

1/ W. A. Wayt, H. R. Moore and C. H. Hillman, "Some Economic and Social Aspects of Part-Time Farming in Ohio," Ohio Agricultural Experiment Station bulletin.

2/ H. R. Moore and W. A. Wayt, "The Part-Time Route to Full-Time Farming," Ohio Agricultural Experiment Station bulletin.

The farms in this area are predominately owner operated. The average size of all farms in the three-county area was reported in the 1954 agricultural census as being about 120 acres, with about two-thirds of all farms being less than 140 acres in size. About 43 percent of all units classed as commercial farms in this area reported gross sales of farm products amounting to less than $5,000 in 1954.

This area is on the fringe of a zone of rapid urban-industrial development. Between 1940 and 1958, the rural population in the three-county area increased by about 39 percent and total population by 31 percent.

Opportunities for nonfarm employment in this area have been expanding. Between 1939 and 1954, the number of industrial establishments in the three-county area increased over 37 percent. In the same period, the number of wage earners employed by industry more than doubled. In 1954, about 30 percent of the farm operators reported working off the farm 100 days or more, compared to only about 14 percent in 1940.

This area was selected as representative of a good agricultural land area that had recently experienced rapid growth in nonfarm employment opportunities.

Method of Study

Within the sample area, a list was compiled of all farmers now farming part time who had previously been full-time farmers. Agricultural Extension Service personnel, soil conservation specialists, vocational agricultural teachers, members of local Agricultural Stabilization Committees, and other farm leaders contributed the names and approximate locations of farmers to be interviewed.

Interviewers attempted to complete a farm schedule for each farmer on the above mentioned list who: (1) was currently operating as a part-time farmer, working off the farm 100 days or more, from the same location (farmstead) at which he had been a full-time farmer, (2) had completed at least one year as a part-time farmer and (3) had sufficient records or recall to provide an accurate description of his farm operation the last year he operated as a full-time farmer.

Initially it had been planned to interview a random selection of the operators from the list of names compiled by the cross reference procedure. However, when preliminary interviews disclosed that the number of eligible respondents was comparatively small, it was decided to attempt to complete a schedule for each eligible farm referral.

Within the limitations set forth above, interview schedules were obtained from 44 farmers in the sample area. In three cases, the data relating to the last year as a full-time farmer were too incomplete to permit comparative analysis. Although some data were salvaged from the three incomplete schedules, most of the analysis here reported is based on the remaining 41 cases.

In the process of analysis, division of the cases into two groups by random selection and applying tests of significance to the split-halves as well as to the total cases, indicated the smaller number of cases gave measures of reliability substantially the same as for the total group.[1/]

1/ Tests of significance were applied to the means of the distributions of full-time and part-time farming operations as paired cases according to the formulation $t = \frac{\bar{X}_1 - \bar{X}_2}{Smd} = (\bar{X}_1 - \bar{X}_2) \sqrt{\frac{N(N-1)}{\sum (X_1 - X_2)^2}}$

Where $\bar{X}_1$ is the mean of the full-time farm distribution, $\bar{X}_2$ the mean of the part-time farm distribution, X represents individual deviation observations and Smd is an estimate of the standard deviation of the mean difference.

Why Farm Part-Time?

The major reasons former full-time farmers gave for shifting to part-time operation were associated with low income from farming (see Table 1). This general dissatisfaction was frequently associated with more specific statements of wants.

In about one-fourth of the cases, the operators were concerned about debt. The indebtedness may have been incurred in purchasing their farm or buying additional land, in making farm or home improvements, in purchasing equipment or livestock, etc. In other cases, it was associated with high medical expenditures and/or losses on major crop or livestock enterprises due to weather, disease, or drastic price changes.

Some operators, not mentioning debts, were concerned about many of the same problems for which others had gone into debt. They were also interested in making farm or home improvements, adding more land or intensifying the farm to utilize more fully their equipment and family labor that was currently underemployed. Some of these operators had looked more to future needs and spoke of the inability to expand the farm operation by either purchase or rental of additional land.

The farm operation of some operators had been reduced by loss of land formerly rented. In some cases, the land had sold; in others, the son or other relative of the landowner had taken over its operation. In still other cases, the operators spoke of acreage allotment and soil bank programs as contributing to the loss of acreage previously farmed or limiting the opportunities for farm expansion.

Table 1. Stated Reasons for Shifting to Part-Time Farming, in Order of Frequency, 44 Western Ohio Farmers, 1956

| Reason stated | Rank of reason | Number stating reason | Percent of farmers stating | Percent of total reasons |
|---|---|---|---|---|
| Low farm income | 1 | 35 | 80 | 37 |
| Pay debts | 2 | 11 | 25 | 12 |
| Increase in family labor supply | 2 | 11 | 25 | 12 |
| Time not fully utilized on farm | | | | |
| Make farm or home improvements | 2 | 11 | 25 | 12 |
| Desire for higher level of living | 3 | 9 | 20 | 9 |
| Good job opportunity | 4 | 5 | 11 | 5 |
| Health | 5 | 3 | 7 | 3 |
| Buy machinery or livestock | 6 | 2 | 5 | 2 |
| Others | - | 8 | 18 | 8 |

Most of these farms had included some dairy production in the farm organization when operated as full-time farms. Over half of the operations could have been classed as dairy or dairy-hog farms; most with less than a 20-cow herd. Many of these operations would have needed relatively large investments of capital to increase the size of their dairy enterprise and make the improvements necessary either to continue or to begin to sell grade "A" milk. The average size dairy herd had been about 12 cows.

The dissatisfaction with their income from full-time farming came about in different ways. Some compared their shrinking net farm income

with that they had experienced during the wartime and immediate postwar years. Between 1951 and 1956, prices of Ohio farm products dropped about 25 percent. Others compared their level of living with that of neighbors who had already taken a nonfarm job. In their desires expressed for farm and home improvements, about half were related to the house--add a bathroom, install a furnace, remodel the kitchen, etc.

About one-fourth of the farmers interviewed had had some previous experience with nonfarm work. In most cases, these operators had held nonfarm employment before they began to operate their own farm. In some cases, their previous experience had been acquired through occasionally working during the winter months over a period of years.

Nearly all of the operators interviewed indicated they preferred to farm full-time; however, they also indicated a preference for the income level associated with nonfarm work. Part-time farming thus appeared to them as the most acceptable opportunity to achieve the income required for family goals and personal satisfactions associated with farm living.

Age of Operator and Household Composition

At the time of interview in 1957, the average age (mean and median) of operators in the sample was 42 years. Operators ranged in age from 27 to 61 years. The number of operators and years of farming by age categories are shown in Table 2.

The relationship between age and total years on the present farm and years of operating it as a full-time farm is apparent. There is, however, no similar progression with age in the shift to nonfarm employment. More opportunities for nonfarm work are normally available to

younger men as compared with older men. None of the operators were more than 51 years of age when they began to work off the farm, and three-fourths were less than 45.

Table 2

Years of Operation as Full-Time and Part-Time Farmers on Present Farm, by Age of Operator, 44 Western Ohio Operators, 1956

| Age group | Number in group | Average years farming this farm | | |
|---|---|---|---|---|
| | | Full-time | Part-time | Total |
| Less than 35 years | 9 | 5.5 | 3.6 | 9.1 |
| 35-39 | 8 | 7.0 | 3.1 | 10.1 |
| 40-44 | 10 | 9.1 | 2.8 | 11.9 |
| 45-49 | 8 | 15.2 | 4.4 | 19.6 |
| 50 and over | 9 | 17.1 | 4.9 | 22.0 |
| All ages | 44 | 10.7 | 3.7 | 14.4 |

When interviewed in 1957, these operators had been farming part time an average of 4 years. Some had completed only one year of part-time farming operation, while others had farmed part time for as long as 10 years. Typically, the group reported the last year as a full-time farmer was 1953.

The average size of the families interviewed was between 4 and 5 persons. The composition of the households and reported time spent at farm and nonfarm work is indicated in Table 3.

Most of the families had children at home who could and did help with the farm work. Since many of the children were of school age,

Table 3

Household Composition and Reported Time at Farm and Nonfarm Work, 44 Western Ohio Families, 1956

| Household members | Total no. | Reporting farm work | | | Reporting nonfarm work | |
|---|---|---|---|---|---|---|
| | | | Ave. hrs. per week | | | |
| | | No. | Summer | Winter | Number | Average days per year |
| Farm operators | 44 | 44 | 40 | 26 | 44 | 219 |
| Wives | 44 | 31 | 18 | 15 | 8 | 208 |
| Male children: | | | | | | |
| 16 yrs. & over | 15 | 13 | 34 | 24 | 2 | 140 |
| 11-15 yrs. | 14 | 12 | 22 | 15 | -- | --- |
| Under 11 yrs. | 29 | 6 | 13 | 11 | -- | --- |
| Female children: | | | | | | |
| 16 yrs. & over | 8 | 1 | 10 | 7 | 1 | 240 |
| 11-15 yrs. | 14 | 8 | 5 | 4 | -- | --- |
| Under 11 yrs. | 25 | 1 | 30 | 10 | -- | --- |
| Total household members | 193 | 116 | 27 | 19 | 55 | 215 |

their contribution during the school year was primarily limited to chore labor in connection with the major livestock enterprises. Some older boys were reported as assuming responsibility for a considerable amount of summer field work.

Six of the households were composed of the operator and wife only. Four families contained seven persons in the household.

About three-fourths of the wives reported doing some farm work (outside the home) such as helping with livestock chores, care of the garden, poultry flock, etc. In some cases, the wife might also help

at times with field work, particularly at planting or harvesting time. Of the 8 wives who worked at nonfarm jobs, 5 reported they also did some farm work each week.

The time reported spent at nonfarm work by the farm operators ranged from 120 to over 300 days. Only about one-fourth of the farm operators were employed at what would normally be considered as less than a "full-time" nonfarm job. Typically, these were self-employed tradesmen, although a few were part-time industrial workers.

Numerous changes are evident in the farm operations when the present part time unit was compared to that previously operated full time. Not all of these changes were the direct result of these operators taking other work. As was noted above, in some cases the loss of land previously farmed or similar happenings that reduced the scale or profitability of the farm were major factors in leading the operator to seek off-farm work.

Size of Farm and Tenure

These 44 farms when operated as full-time units included 7,451 acres or an average of about 170 acres per farm.

In 1954, the average size of a commercial farm in this area was about 149 acres. In that same year, in the 3 counties included in the sample, about one-third of all farms were 140 acres or over in size. As full-time units, 25 of the 44 farms in the sample were 140 acres or larger.

It would thus appear that the group of farms considered in this study would represent average or slightly larger than average commercial farms in the area.

Table 4 indicates the tenure position of these operators as full and as part-time farmers. Three-fourths held title to all or part of the land

they operated. The reduction in total acreage operated associated with part-time farming was primarily through a reduction in land previously rented. The shift to part-time farming was associated with a reduction of about one-fourth in total acreage operated. This adjustment was the result of a decrease in rented land of over 40 percent while owned acreage was reduced 6 percent.

Table 4

Land Tenure Pattern on 44 Western Ohio Farms
Changing from Full-Time to Part-Time Operation

| Tenure group | Acreage (full time) | | | Acreage (part time) | | |
|---|---|---|---|---|---|---|
| | No. | Mean | Range | No. | Mean | Range |
| Full owner | 20 | 126 | 65-270 | 24 | 109 | 60-210 |
| Part owner* | 13 | 210 | 97-407 | 9 | 164 | 97-245 |
| Owned | | 101 | 55-160 | | 108 | 55-160 |
| Rented | | 109 | 12-310 | | 56 | 12-100 |
| Full tenant | 11 | 199 | 54-360 | 11 | 142 | 54-275 |

* Part owners own some land and rent additional acreage to operate.

Differences in the amount of rented land in the different sizes of units are shown in Table 5 and Figure 1.

Three operators had rented out some owned land to others to operate since taking off-farm employment, and four had reduced their active operation by use of the soil bank program in 1956. About one-fourth of all operators indicated they planned to use the soil bank the following year.

Figure 1
Owned and Rented Land in the Average Operation of 44 Western Ohio Farmers
as Full-Time and Part-Time Operating Units,
by Total Acreage, 1956

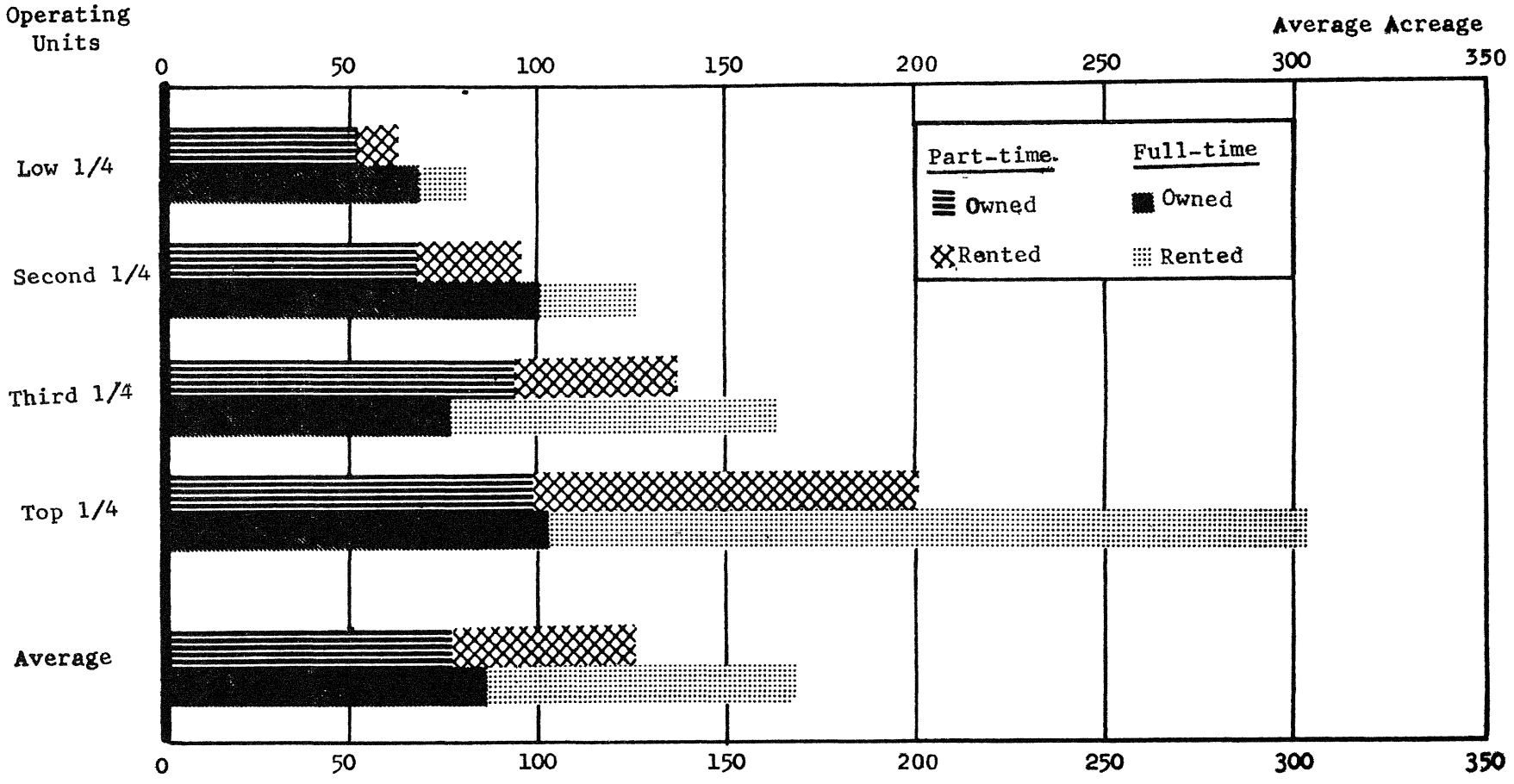


Table 5

Owned and Rented Land in the Average Operation of 44 Western Ohio Farmers as Full-Time and Part-Time Operating Units, by Total Acreage, 1956

| Size class | Acreage - Full Time | | | Acreage - Part Time | | | |
|---|---|---|---|---|---|---|---|
| | Owned | Rent in | Operate | Owned | Rent in | Rent out | Operate |
| Smallest - 1/4 | 69 | 13 | 82 | 70 | 12 | 19 | 63 |
| Second - 1/4 | 100 | 26 | 126 | 66 | 28 | -- | 94 |
| Third - 1/4 | 77 | 88 | 165 | 93 | 44 | -- | 137 |
| Largest - 1/4 | 103 | 200 | 303 | 98 | 103 | -- | 201 |
| All farms | 87 | 82 | 169 | 82 | 47 | 5 | 124 |

The usual pattern was to reduce the acreage operated; however, some men continued to farm more than 200 acres along with working at the nonfarm job. In two cases, operators actually operated more acreage than they had had in their "full-time" unit.

The median acreage in the full-time units was 149 acres compared to 108 acres for the part-time operations.

Land Use

The land use patterns found on the study area farms were generally typical of the land use pattern in western Ohio. Under each operating arrangement, the majority of the available tillable land was devoted to the production of field crops (see Table 6). Crops other than hay accounted for 61 percent of the total operated acreage during full-time and 55 percent during part-time operations with the remaining acreage being distributed among hay, pasture, homestead and waste.

In each operating group, the same major crops were grown in approximately the same proportion, but the acreage devoted to each crop was reduced on the part-time units. The acreage devoted to production of field crops and hay was reduced about 32 percent, and acreage allocated to all uses was reduced 27 percent in the move to part-time farming. More of the land in part-time units was in pasture, woods, farmstead sites and waste.

Table 6

Land Utilization on Farms under Full-Time and Part-Time Operations, Three Western Ohio Counties, 1956

| Land use | Last year - full time | | Part time - 1956 | |
|---|---|---|---|---|
| | Acres per farm | Percent | Acres per farm | Percent |
| Crops | 130 | 77 | 88 | 71 |
| Corn | 48 | 28 | 31 | 25 |
| Hay | 27 | 16 | 19 | 16 |
| Wheat | 25 | 15 | 13 | 10 |
| Oats | 18 | 11 | 15 | 12 |
| Soybeans | 10 | 6 | 8 | 6 |
| Others* | 2 | 1 | 2 | 2 |
| Pasture | 19 | 11 | 16 | 13 |
| Woods, waste, homestead, etc. | 20 | 12 | 20 | 16 |
| Total | 169 | 100 | 124 | 100 |

* Other crops included barley, rye, potatoes, tobacco, corn sorghum and clover seed.

Overall, the land use patterns under the two systems remained virtually unchanged. The decrease in proportion of the farm in field

crop production during part-time operation was almost a direct result of the reduction in the number of total acres farmed. This in turn was influenced by a decrease in the tillable acreage rented which frequently was rented as fields rather than as complete units.

Types of Crops and Crop Acreage

The types of crops grown under the two different operating arrangements are influenced by the general soil and climatic conditions that typify this portion of the corn belt. Corn, wheat, oats, and soybeans are the major crops produced in the rotations followed by both full-time and part-time farmers in this area. All of the farmers under each system raised one or more field crops. Corn was the most popular crop followed in descending order of importance by wheat, oats, and soybeans.

As a result of the reduction in the acreage under cultivation, the average acreage per farm reporting and the average acreage of all crops for all farms declined after the change to part-time farming. The yields obtained part time were approximately the same as those during full time. Corn, oats, soybeans and hay crop yields were increased or remained the same, while wheat, barley and tobacco crops all experienced slight decreases in yields. These variations, however, were not so large but what they could have been the result of normal variation of a crop season. Rye and corn sorghum were two crops planted for the first time by a few operators as part-time farmers. The production of potatoes was discontinued on one unit that shifted to a part-time operation.

## Livestock

Livestock provided the mechanism through which the major portion of the field crops produced during full and part-time farming operations were marketed. Under both operating arrangements, the majority of the farmers kept some type of livestock. All except two farms had had livestock when operated as full-time units; all but four had livestock in 1956.

Table 7

Livestock, by Kind, Amount and Average Number per Farm, during Full and Part-Time Farming Operations in the Three Selected Western Ohio Counties, 1956

| Kind of livestock | Number of farms reporting | | Number per farm reporting this item | | Average number per farm for 41 farms | |
|---|---|---|---|---|---|---|
| | Full time | Part time | Full time | Part time | Full time | Part time |
| Dairy cows | 36 | 26 | 12.3 | 10.3 | 10.8 | 6.5 |
| Dairy calves | 32 | 24 | 12.1 | 11.1 | 9.5 | 6.5 |
| Beef cows | 8 | 14 | 9.5 | 6.8 | 1.9 | 2.3 |
| Beef feeders | 7 | 18 | 11.1 | 10.4 | 1.9 | 4.6 |
| Sows | 30 | 24 | 6.4 | 8.2 | 4.7 | 4.8 |
| Pigs | 31 | 27 | 79.9 | 71.9 | 60.4 | 47.3 |
| Ewes | 6 | 9 | 21.0 | 30.6 | 3.1 | 6.7 |
| Lambs | 6 | 8 | 21.7 | 26.0 | 3.2 | 5.1 |
| Hens | 30 | 26 | 145.0 | 74.0 | 106.0 | 47.0 |
| Chickens | 22 | 15 | 195.0 | 188.0 | 105.0 | 69.0 |
| None | 2 | 4 | -- | -- | -- | -- |

The farms in the study could be classified as primarily dairy-hog operations (see Table 7). As full-time operators, 88 percent maintained a dairy herd averaging 12 cows; as part-time operators, 63 percent shipped milk from an average herd of 10 cows in 1956. A hog enterprise was maintained on 77 and 66 percent of the units respectively as full and part-time operations.

Poultry appeared in the organization on 73 percent of the full-time and on 63 percent of the part-time units.

During the full-time operations, sheep and beef enterprises were somewhat less popular, being found on less than 20 percent of the farms. After the change to part-time farming, beef was found on 44 percent of the farms and sheep on 22 percent of the farms.

In the major enterprise, dairy, the records indicate these farmers were obtaining production performance above average for the area. The per cow production on the study farms was about 8,100 pounds per year (full-time operation) and had been increased to about 8,900 pounds per cow per year (part time) in 1956. In this region, production per cow was about 6,300 pounds in 1953. The state production per cow average in 1953 and 1956 was about 6,200 and 6,800 pounds respectively. Evidently the farmers culled their herds more critically when shifting to part-time operation.

The livestock enterprises on the farms in the study area had undergone a noticeable adjustment during the change from full to part-time farming operations. After becoming gainfully employed at an off-the-farm job, the farmers in this study reduced certain livestock enterprises to be more nearly in balance with the smaller feed supply and labor resources available to handle livestock.

During the transition to part-time farming, the labor load attributed to livestock was reduced by several methods. A few farms eliminated livestock entirely. Others, through a combination reduction and substitution of livestock enterprises, managed to relieve the work load. All of the enterprises (dairy, swine and poultry) which have high labor requirements and had constituted the most desirable enterprises during the full-time operations were reduced during the transition to part-time farming.

Fewer farmers retained dairy, swine and poultry enterprises after the change. Only about three-fourths as many farmers maintained a dairy herd; swine numbers declined by 14 percent and poultry by 17 percent below the full-time operation level.

Not all livestock enterprises were reduced. The beef and sheep enterprises were increased after the transition. Fifteen percent more farmers kept beef cows and 27 percent more raised or fed out young beef animals. Sheep were added to a few more of the farms. The grazing nature and the low labor requirements made these enterprises better suited for these part-time farms.

Productive Employment

In the process of evaluating two different operating systems on the same farms, the appraisal of the land and livestock resources indicates very little of the intensity of land use and the utilization of crops by livestock. It is apparent that more information could be derived if the operations on the farms in question could be compared in terms of some common denominator.

The various operations on the 41 western Ohio case farms providing details of both the full and part-time operations were analyzed in reference to the productive employment they provided. The labor requirements for

each farm was summarized in terms of the amount of productive labor required, hereinafter referred to as work units and abbreviated as PMWU.[1/]

During full-time operations, these farms provided an average work load of 312 productive man-work units, ranging from 109 to 613. This gives a relative indication of the size of business of these farms, since the average Ohio commercial family farm furnishes approximately 250-300 PMWU per year. The wide variation in the range of PMWU of these farms was due primarily to differences in intensity of the livestock operation. On about a third of the farms, the size of the farm business, as measured by PMWU, was little different as part-time from the full-time operation. In 5 cases, the volume of business was actually larger under part-time than full-time operation. In the latter situations, other family members were carrying a larger share of the farm work. Usually boys of high school age were becoming more active participants in the farm operations, expanding the dairy herd etc.

Typically, the part-time farm operation provided about 200 man days of labor (PMWU) or was only about two-thirds the size of the previous

1/ Definition of a productive man-work unit: the amount of work performed in a ten-hour day for the production of crops, livestock and livestock products by an average worker with typical methods and equipment on the ordinary commercial farms. Following is the number of productive work units accorded to different units of farm production:

| Crops | Unit | PMWU | Livestock | Unit | PMWU |
|---|---|---|---|---|---|
| Corn | Acre | 1.00 | Dairy cows | /head/year | 12.00 |
| Wheat | " | .65 | Dairy replacements | " | 2.00 |
| Barley | " | .65 | Dairy calves | " | .10 |
| Rye | " | .60 | Ewes | " | .50 |
| Oats | " | .50 | Lambs | " | .80 |
| Soybeans | " | .60 | Beef cows | " | 1.50 |
| Alfalfa | " | .65 | Beef heifers | " | 1.00 |
| Mix hay | " | .50 | Beef calves & steers | " | 1.00 |
| Other hay | " | .40 | Brood sows | " | 3.00 |
| Tobacco | " | 30.00 | Market hogs | " | .25 |
| Orchard | " | 20.00 | Laying hens | per 100 | .25 |
| Vineyard | " | 20.00 | Broilers | " | 1.60 |
| Garden | " | 10.00 | Turkeys | " | 7.10 |
| Potatoes | " | 8.00 | | | |

full-time unit.[1/] Thirteen operators had reduced the size of the farming operation by 150 or more PMWU.

Table 8

Average Productive Man-Work Units on 41 Western Ohio Farms under Two Different Operating Arrangements, Percentage Change, by Full-Time PMWU Group, 1956

| PMWU group | Full time | Part time | Percent change |
|---|---|---|---|
| Low 11 | 183 | 132 | -28% |
| Second 10 | 266 | 162 | -39 |
| Third 10 | 320 | 219 | -32 |
| Top 10 | 495 | 300 | -39 |
| Average | 313 | 202 | -35 |

Table 8 shows these 41 farms divided into four groups according to the amount of productive employment they had provided as full-time units. All four groups of farms exhibited decreases in the amount of PMWU per farm after the shift to part-time operation.

Although the average decrease was least in the case of the smaller units, this was not uniformly true for all farms. Some of the farms in the lowest PMWU group as full-time farm operations had decreased PMWU by as much as 60 percent with part-time operation.

The extent of decrease in operations varied widely from farm to farm in each group. Similarly, one or a few farms in each group had actually expanded production under part time compared to the previous organization.

The above further emphasizes the extent to which each operation is somewhat unique and the difficulty of classifying on the basis of one

1/ The reductions in PMWU in total and as to allocations between crop and livestock enterprises were highly significant, yielding "t" of 6.1, 4.5 and 4.9 respectively.

variable without having a wide range of situations represented in regard to some other item.

As the average labor requirement declined 35 percent to 202 PMWU, the range of situations on individual farms became 42 to 523. The latter case was a family operation with high school age sons providing a substantial amount of the labor required for the 22-cow dairy herd and other livestock. Very little hired labor was used. This farm was well equipped with labor-saving machinery.

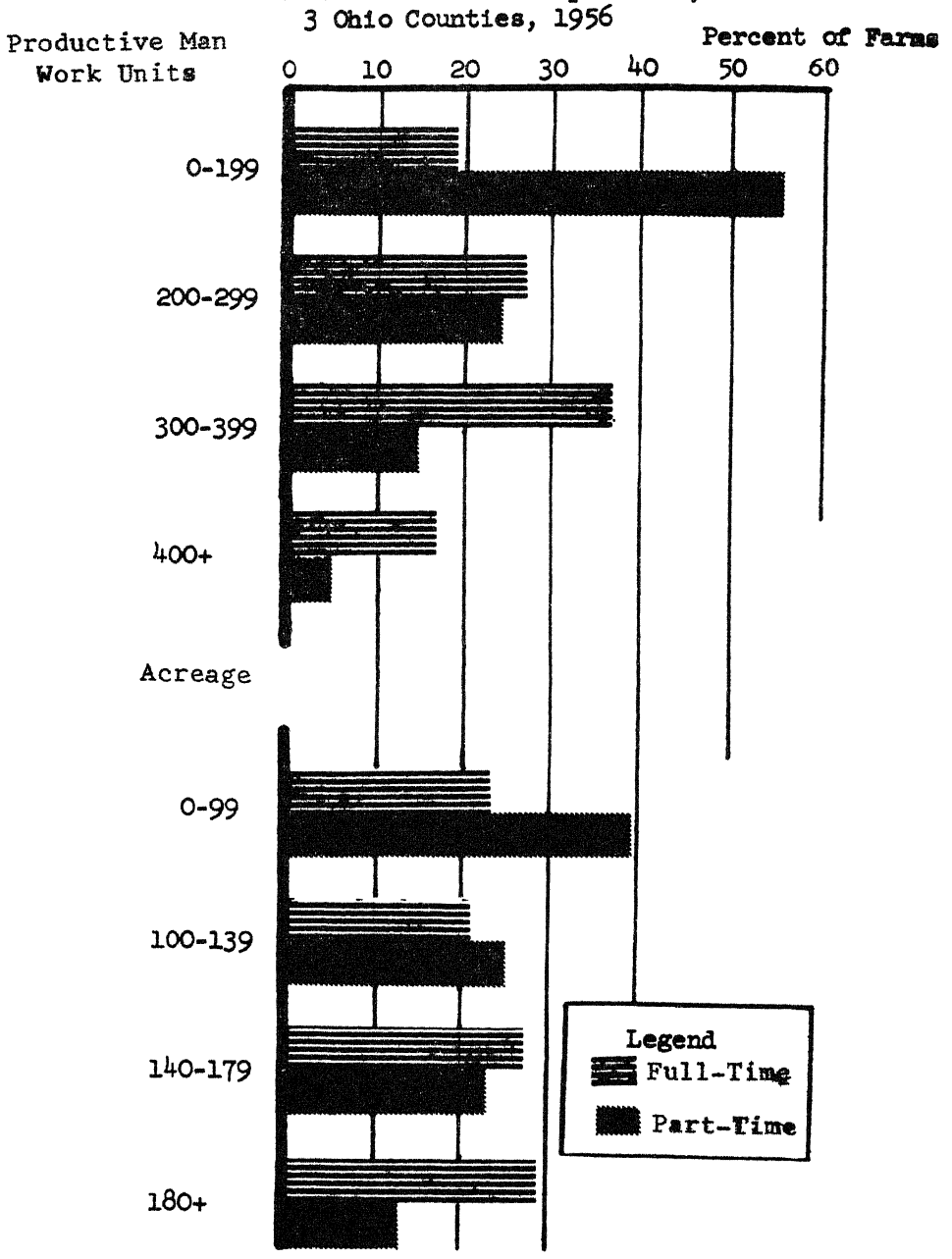
Figure 2 illustrates the change in distribution of these farms as to acreage and PMWU classes. As full-time operations, the farms were fairly evenly distributed among the four groups shown. The shift to part-time operation was associated with a marked increase in the number of farms of less than 140 acres in size and also in number of units providing less than 200 PMWU.

Operators differed in the patterns of adjustment they followed. Some drastically reduced or completely eliminated livestock enterprises to become primarily cash grain operations. Others reduced the number of livestock enterprises but might have intensified or expanded the remaining enterprises. Whereas some farmers shifted from dairy to beef, sheep or hogs, others made reductions in their hogs, poultry, etc. and concentrated on dairy production.

There were some indications that adjustments extended over a considerable period of time. The first few years after taking the nonfarm job some operators tried to farm as much as they had previously but then later made reductions in their farm operation. Others made drastic reductions the first year or two and then began to reshape the farm operation

Figure 2

**Percentage Distribution of 41 Western Ohio Farms According to Productive Man-Work Units and Acreage during Full-Time and Part-Time Operation, 3 Ohio Counties, 1956**



to a size sufficient to utilize their own and the family labor that was available to farm.

These 41 farms were in various stages of adjustment to part-time operations in 1956. About one-fifth were in the first or second year of part-time operations while another two-fifths had been operating part-time for three to four years. Those in the five to six-year range accounted for about 27 percent of the farms, and the remaining 12 percent had been operating seven or more years with nonfarm employment (see Table 9).

Table 9

Productive Man-Work Units Provided under Full and Part-Time Farming Operations, by Years of Part-Time Operations, 3 Western Ohio Counties, 1956

| Yrs. of part-time operations | No. of cases | Average productive man-work units per farm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Crop | | | Livestock | | | Total | | |
| | | Full time | Part time | % change | Full time | Part time | % change | Full time | Part time | % Change |
| 1-2 | 9 | 98 | 84 | -14 | 190 | 100 | -47 | 288 | 184 | -36 |
| 3-4 | 16 | 101 | 69 | -32 | 243 | 135 | -44 | 344 | 204 | -41 |
| 5-6 | 11 | 90 | 61 | -33 | 184 | 157 | -14 | 274 | 218 | -20 |
| 7 & over | 5 | 155 | 64 | -59 | 181 | 107 | -41 | 336 | 171 | -49 |
| Total | 41 | 104 | 70 | -33 | 209 | 132 | -37 | 313 | 202 | -36 |

Those operators who had been part-time farming less than three years had reduced their productive effort devoted to crops by only about 15 percent while their livestock production was nearly cut in half. With passage of more time, crop production was further reduced, but livestock production was built up to more nearly approach its importance in the previous full-time farm organization.

The large drop in livestock PMWU initially reflects the effects of discontinuation of a dairy operation by several farmers in that group. Some dairymen had shifted their operation more gradually by culling the herd more closely and then rebuilding with better stock.

Some farmers discontinued dairy operations and gradually built a livestock program devoted more heavily to beef and sheep production. The length of time required to rebuild or develop a herd is perhaps reflected in the larger livestock program of those who had been operating as part-time farmers for five years or more. Some of the part-time farmers had developed a substantial beef fattening enterprise.

The scope of the crop operation declined steadily as the years at part-time farming increased. As was noted earlier, some of this shift was associated with a decrease in use of rented land. Longer rotations, more emphasis on pasture utilization and participation in the soil bank were other alternatives used in reducing the amount of time required by the crop enterprises.

The amount of productive work accomplished by a given amount of time spent (labor efficiency) on the farm varies widely from unit to unit. The ability and energy of the worker, the capital equipment and resources with which he works, and the quality of land on which his effort is expended will influence his labor efficiency.

Labor Efficiency

The productive man-work unit standard of accomplishment assumes a level of efficiency on the typical Ohio farm today based on the general use of certain labor-saving equipment etc. The worker able to produce

an acre of crops and care for more livestock in less time than that assumed by the PMWU rating, would thus rate as more efficient.

The 41 farms included in this study exhibited a wide range of conditions of labor efficiency by a comparison of time reported spent on the farm with the PMWU standard (see Table 10). The total time reported spent on these farms by the operator and others is made up of maintenance labor as well as productive labor. In all four groups, the average days reported spent by the operator and others exceeded the productive man-work units by the equivalent of at least two man months of labor. This gives some indication of the fact that a minimum amount of maintenance or not directly productive work is necessary on all farms.

Covered up in the grouping process used in the following table are a few farms with PMWU in excess of the time reported spent on the farm.

Table 10

Average Days Labor Reported Spent on Farm, Productive Man-Work Units, and Ratio of These Measures, 41 Farms during Part-Time Operation, by PMWU Range, 3 Western Ohio Counties, 1956

| PMWU range | No. of cases | Ave. days labor reported spent on farms** | Productive man-work units | | | Ratio of days labor reported spent on farm to PMWU* |
|---|---|---|---|---|---|---|
| | | | Crops | Livestock | Total | |
| 0-99 | 8 | 248 | 46 | 21 | 67 | 3.7 |
| 100-199 | 15 | 248 | 54 | 94 | 148 | 1.7 |
| 200-299 | 10 | 346 | 98 | 146 | 244 | 1.4 |
| 300-over | 8 | 457 | 87 | 285 | 372 | 1.2 |
| Total (or average) | 41 | 313 | 70 | 132 | 202 | 1.6 |

* $\frac{\text{Days labor reported spent on farms}}{\text{PMWU}}$

** Hours reported spent by operator and others converted to ten-hour days. Of the total time reported, labor by the operator represents 54 percent of the total.

These farms are distributed through the three larger PMWU categories shown below. These units were a little larger than average, had considerably more livestock and were operated by somewhat younger operators. All were well equipped with machinery and some had previously performed quite a bit of custom work for other farmers. Whether or not this apparent efficiency was attained by neglecting or postponing maintenance labor could not be determined by this analysis.

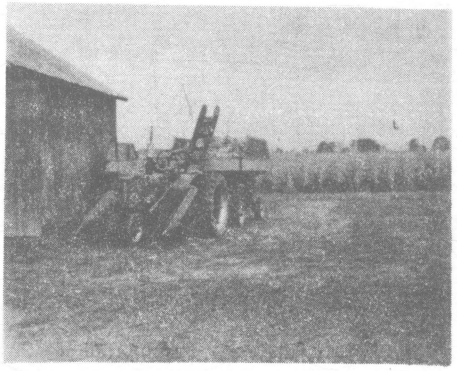
Generally, as the part-time farm operations increased in size, in terms of the PMWU each provided, they became more efficient. From the small to the large farm unit, the efficiency ratio of days reported spent on the farm to PMWU by the operator and others continued to narrow. The least efficient group was those farms which provided less than 100 productive man-work units.

As the farm units increased in size (PMWU), there was a tendency to more fully utilize the labor reported spent on the farm. These larger units required more careful planning to achieve effective use of the available time of the operators and family members. The farms in the largest group (over 300 PMWU) were using equipment to a greater extent than those in the first three classes.

Problems in Making Adjustments

In response to numerous questions relative to problems with either the crop or livestock program carried along with nonfarm work, the majority of these operators had none to report. Several noted that

With Present Equipment a Farm Operator Can Handle a Sizable Acreage Along with a Nonfarm Job.



with the reduced acreage they were able to perform most of the farm work in a more timely manner than previously. Many stated that at the time of interview (1957) they were generally further along with their crop work than their full-time neighbors. The reduction in rented acreage together with the use of the soil bank program on owned acreage had reduced adjustment problems.

Then, too, since few operators had reduced the amount of field equipment from that used when farming full time, they were able to perform many of the crop operations in a short period of time. Several operators mentioned a reduction in the amount of custom work done previously as another type of adjustment. Although the physical amount of equipment owned by these operators was relatively large compared to their present size of farm, much of it was comparatively old and the investment (depreciated value) per acre was not extremely high.

Problems mentioned most frequently, relative to the livestock enterprise, were the inability to give proper attention to hogs or sheep at time of birth. Some also mentioned difficulties in maintaining the breeding program with their livestock. Some of these operators noted that, as a result of the nonfarm income, they were able to cull their herds more carefully and thus had been able to increase performance averages.

As was noted above, different operators used different approaches to their problems. Some reduced livestock numbers, others reduced the types of livestock kept and concentrated on one or two enterprises, while others shifted to livestock that demanded less time and attention. The operator's job and work shift, and the available family labor, as well as

the personal preferences of the individuals, influenced the kind of adjustments made on the 41 farm units.

Farm and Family Incomes

In the final accounting, the financial success of any business is measured by the level of net income it produces. Since net income is the amount remaining after the costs of doing business are covered, it is usually closely related to the volume of gross income. Farming is no exception.

Although the quest for higher incomes had led these farm operators to seek nonfarm employment, their full-time farm incomes had generally compared favorably with the incomes of other farmers in the area. The average gross incomes of these operators when full time was about $1,000 higher than similar gross income figures for all farms in the three-county area according to 1954 census data.

Gross farm incomes during the last year of full-time operations on the 41 farms in the study had ranged from $3300 to $24000. The mean gross income per farm was about $8500. The farms with the extremes of gross income reported net incomes of $120 and $10000 respectively. The mean net income from full-time farm operations was a little less than $3000.

From 1951 through 1955, the general level of Ohio farm product prices had declined steadily. Prices received for products in 1952 were down about five percent from 1951, and in 1953, they decreased about nine percent more. Further reductions occurred in 1954 and 1955.[1/] By 1955,

1/ Margaret McDonald, Wallace Barr, Reginald K. Harlan; "Handbook Ohio Farm Prices 1909-1958," A.E. No. 266 Revised, Dept. of Agr. Econ. and Rural Soc., Ohio State University, 1959.

prices had declined about 25 percent from the 1951 level. Thus, the physical output of farm products that had produced a gross income of $10,000 in 1951 was worth only about $7500 at 1955 farm product prices.

In order to compare the income position of these 41 farmers in 1956 with their position when farming full time, some adjustment must be made for the changes in levels of farm product prices.

In Table 11, the 41 farms have been divided into four groups based on the amount of productive labor the farms provided. Two gross income figures are given for each class of farms. The first is the average gross income actually reported for these farms in their last year of operation as full-time units.

The adjusted gross income figure reflects the change in prices of farm products that had taken place between the last year at full-time farming for each operator and 1956. If these farms had produced and sold exactly the same amount of the different products in 1956 that they did in the last year as full-time operators, their average gross income would have been only $7472.

From their gross income, farm operators have to pay out money for feed, seed, supplies, taxes on real estate, interest on debts, hired labor, purchased livestock, machinery, etc. and also set aside allowances for depreciation of equipment, buildings, etc. These costs of operation took about 65 percent of the actual gross income, leaving as net income an average of $2968 per farm.

For comparison with the incomes of these farm operators in 1956, the net incomes in the last year at full-time farming should also be adjusted for the changing levels of prices. Thus, the business that yielded

a net income of about $3000 in the last year as a full-time operation would have produced only about $2600 net to the farm family in 1956.1/

Table 11

Average Incomes during Full-Time and Part-Time Farm Operations on 41 Western Ohio Farms, Grouped by PMWU Ranges, 1956

| Item | PMWU provided as full-time unit | | | | |
|---|---|---|---|---|---|
| | 100-235 | 236-302 | 303-350 | 351-640 | Total or average |
| Number of cases | 11 | 10 | 10 | 10 | 41 |
| **Last year as full time** | | | | | |
| Average PMWU | 183 | 266 | 320 | 495 | 313 |
| Gross income (actual) | $6181 | $7930 | $7900 | $12300 | $8529 |
| Gross income (adjusted)* | 5334 | 6863 | 7253 | 10651 | 7472 |
| Net family income (actual)** | 2168 | 2606 | 2584 | 4593 | 2968 |
| Net family income (adjusted)* | 1860 | 2263 | 2351 | 3967 | 2592 |
| **As part-time units in 1956** | | | | | |
| Average PMWU | 132 | 162 | 219 | 300 | 202 |
| Gross farm income | $4148 | $6938 | $6740 | $6850 | $6120 |
| Net farm income** | 1359 | 2169 | 2086 | 2205 | 1940 |
| Average days nonfarm (operator) | 231 | 220 | 196 | 232 | 220 |
| Gross nonfarm income*** | $4464 | $4430 | $4600 | $4644 | $4533 |
| Net nonfarm income**** | 4018 | 3987 | 4140 | 4180 | 4080 |
| Total farm family gross income | 8612 | 11368 | 11340 | 11494 | 10653 |
| Total farm family net income | 5377 | 6156 | 6226 | 6385 | 6020 |

* Actual dollar income adjusted to 1956 dollars by Index of Ohio Farm Product Prices. (1956 = 100)

** Net income data not obtained during interview on 18 full-time and 12 part-time operations estimated through budgetary methods.

*** These nonfarm income figures reflect the wage income of more than one worker in some families in each group.

**** Net nonfarm income = gross nonfarm income minus a 10 percent reduction for travel, union dues, additional clothing, meals outside home, etc.

1/ This adjustment assumes that net income would be reduced in the same proportion as gross, whereas actually it would probably have been reduced more. During this period, costs were not changing in the same proportions as product prices so it became increasingly difficult to maintain the same ratio of net earnings to gross incomes.

When operated as full-time farms, the net family earnings on this group of farms averaged about 35 percent of the gross farm income. This ratio compared favorably with other farms in the area as revealed by farm business analysis reports on farms in this area. Although the ratio of net returns to gross income was not unfavorable, these farmers had been unable to expand gross incomes from farming sufficient to give them the level of net family income they desired. Nonfarm employment appeared more promising as an alternative than trying to further expand the farming operation.

In 1956, these farm operators spent an average of 220 days at nonfarm work, and in six cases, the wife also took a nonfarm job. This off-farm activity brought in an average of $4533 gross income per family.

Although a much larger share of this gross income figure represents net income to the family, there are costs associated with such earnings. These operators typically had the expense of driving about 10 miles to work each way each day, additional costs for clothing, meals eaten outside the home etc. Since about half of these farmers were members of a labor organization, they also had union dues and other expenses associated with their employment. To make some adjustment for costs associated with the nonfarm job, a deduction of 10 percent was made to arrive at an estimate of net income from the off-farm work.

The overall effect of the shift of family labor resources to nonfarm employment was to reduce both gross and net income from the farm. Gross farm income (in 1956 dollars) was reduced about 18 percent and net income from the farm by about one-fourth.[1/] Three operators reported more gross

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1/ Difference in means is highly significant--"t" 5.5 and 3.6 respectively.

farm income in 1956, and nine operators realized more net income from the farm than they had under full-time operations. Net income from the 41 farms averaged $1940 in 1956 but ranged from $5100 to a loss of $89.

However, the decrease in income from the farm was more than balanced out by the addition of the nonfarm income. These earnings, ranging from $1500 to $9400, averaged $4533 per family. After allowance was made for costs associated with this employment, the net addition was about $4000 per farm family.

The overall effect on family net income was to increas from about $2500 (adjusted) as full-time farmers to about $6000 under part-time operation. All farm families reported an increase in family net income. Under part-time operation, the range of net incomes was from $2240 to $12,750 compared to the range of $220 to $10000 under full-time operation.

Most of these operators expected to continue to operate the farm part time. Some were using the increased level of income to reduce indebtedness on the farm and to make farm improvements they had been unable to undertake before. Frequently, home improvements, remodeling, installation of a bathroom, putting in a furnace and a modern kitchen were major expenditures undertaken.

Some operators appeared to be overworking themselves and their families. Their health is likely to suffer. Others, however, expressed the thought that the amount and relative certainty of the nonfarm income had relieved them of a great deal of worry about financial matters so that they "felt better" and enjoyed life more than when on the farm only.

Their future plans were well expressed by one man who said, "I like farming better than I do my job--but I like the nonfarm income better than that from the farm."

Alternative Adjustments

Thus far, emphasis has been placed on describing the adjustments made in the farm operations of west central Ohio farm families in which the operator had taken nonfarm employment and continued to farm part time. This was the alternative chosen by these families to achieve higher incomes. It would appear that two other alternatives were, or might have been, considered -- (1) expanding the farm operation or (2) quitting farming entirely and shifting to nonfarm employment. The latter might also involve moving to town or remaining in a rural area with only a residence. Let us examine these alternatives.

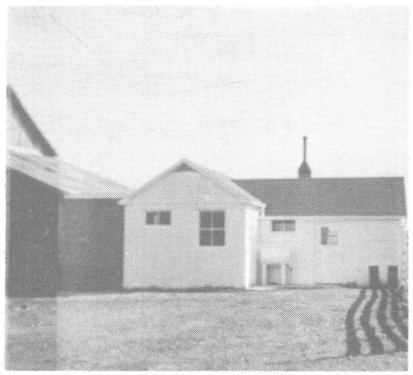
Expanding the Farm Operation

If we assume the net family income realized from part-time farming operations ($6000) as being a goal or target income--what amount of farm expansion would be required to achieve it? The previous full-time farm operations of these farmers had returned a net family income of about $3000 from a gross income of about $8500.

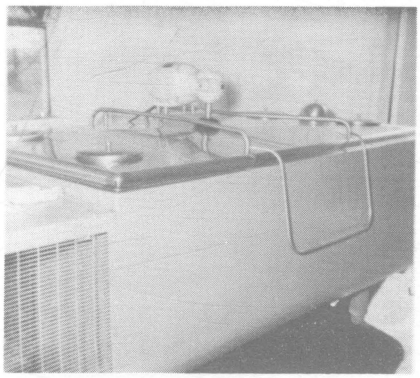
If the farm operations were to have been expanded in the same general proportions with no increase in efficiency, this would mean that the resources used in the farm operation would have to be just about doubled--i.e., twice the acreage, livestock, equipment, and twice the labor inputs.

This expansion, requiring considerably more land and capital, was evidently not a practical alternative for most of these operators. These men were already concerned about debt levels and had stated their inability to obtain sufficient land through rental arrangements. A doubling of the resources and output, with the prevailing levels of efficiency, frequently would also have required the use of hired labor since the

The Nonfarm Income Frequently Helps in Making Farm and Home Improvements:

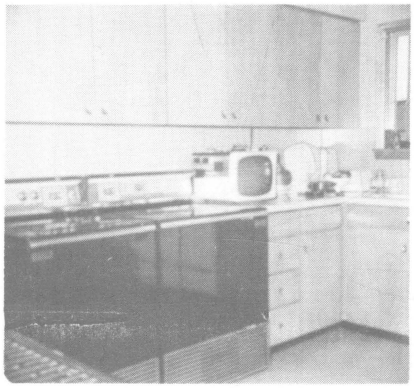


A New Milk House



A New Bulk Tank

Modern Kitchens

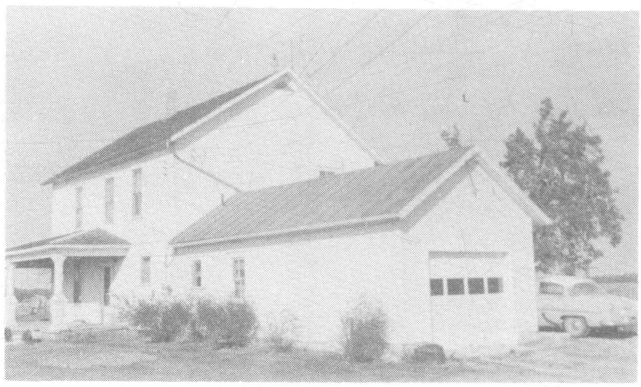


New Appliances

Bathrooms too

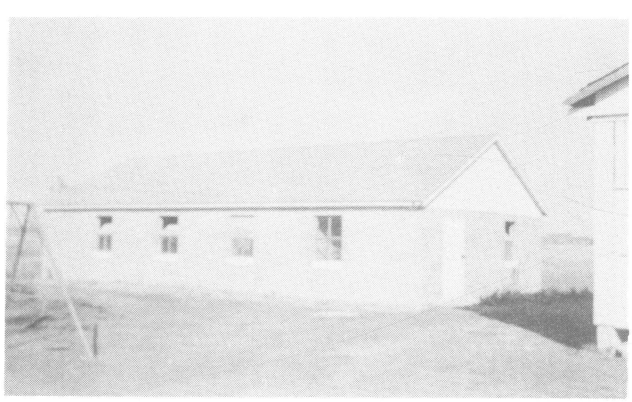
Extensive Remodeling of the Farm Home

(Before)



(After)

or Adding New Outbuildings



productive labor requirements would have increased on the average to about that for a two-man farm. In many cases, there would remain also the question of the ability of these farm operators to manage an operation of this required size.

A second and more practical alternative would be to intensify the operations on the existing farm base. This would mean concentrating on one or a few enterprises and increasing the productive efficiency of the resources so used.

Insofar as many of these operators were already engaged in dairy-hog operations, it seemed logical to use a budgetary approach to the intensification of these enterprises. Results of these budgets indicate that the second alternative might have been a feasible approach for some of those operators who had command of 140 acres or more.

With the existing (1956) price and cost relationships, it would appear that the operators might have achieved the "target" net family income of $6000, if they:

1. Had access to a grade A milk market and were able to maintain a production of about 9000 pounds (3.5 percent milk) per cow from a 20-cow herd.

2. Could operate a 15-16 sow-swine enterprise producing 14 pigs per sow per year.

3. Achieve the relatively high level of crop production of better farmers in the area (corn, 90 bushels; wheat, 34 bushels; and alfalfa hay, 3.5 tons per acre).

4. Obtain the use of about $7500 of additional capital to make the necessary adjustments.

Table 12

Condensed Summary of Budgeted Program, Receipts and Expenses Compared to the Program of the Average of the 41 Farms When Operated Full Time

| Capital invested | Average of the 41 farms | Budgeted program | Difference |
|---|---|---|---|
| Land and buildings | $27,300 | $30,300 | $3,000 |
| Livestock | 9,400 | 8,900 | - 500 |
| Machinery and equipment | 6,070 | 9,500 | 3,430 |
| Feed, grain, supplies, etc. | 3,500 | 5,000 | 1,500 |
| Total | $ 46,270 | $53,700 | $7,430 |
| Farm receipts | | | |
| Milk | 2,824 | 7,704 | 4,880 |
| Cattle | 890 | 509 | - 381 |
| Swine | 2,612 | 7,855 | 5,243 |
| Crop sales | 1,071 | 4,530 | 3,459 |
| Other | 75 | 60 | - 15 |
| Total | $ 7,472 | $20,658 | $13,186 |
| Farm expenses | | | |
| Rent | 875 | 875 | 0 |
| Hired labor | 0 | 350 | 350 |
| Fuel and oil | 665 | 1,200 | 535 |
| Machinery repair, machinery hire and farm share of truck & auto expense | 390 | 1,350 | 960 |
| Electricity & tele. (farm share) | 200 | 300 | 100 |
| Fertilizer, lime, seed & plants | 1,050 | 3,237 | 2,187 |
| Feed purchases | 550 | 1,600 | 1,050 |
| Veterinarian fees, milk testing, breeding fees, livestock purchase, milk hauling, etc. | 500 | 1,241 | 741 |
| Taxes, interest, insurance and depreciation | 550 | 3,595 | 3,045 |
| Building and fence repair | 100 | 400 | 300 |
| Total | 4,880 | 14,148 | 9,268 |
| Summary | | | |
| Total receipts | 7,472 | 20,658 | 13,186 |
| Total expenses | 4,880 | 14,148 | 9,268 |
| Net income | $2,592 | $ 6,510 | $3,918 |

The cropping program is built around a four-year rotation of corn, corn, small grains, and hay which provides an ample supply of grain and roughage for the livestock. The additional capital would have been needed in part to improve the facilities for milk handling and in part for equipping the swine enterprise. The overall investment in livestock was little different from that on the full-time unit in the average situation because other types of livestock were eliminated in favor of dairy animals and swine. Some additional capital was also needed for maintaining the required level of feed and supply inventory, increasing levels of fertilizer application, and other working capital needs.

The budgeted operation requiring about 350 PMWU would yield a farm gross of about $20,500 less expenses of $14,000, leaving a net family income of about $6,500. The summary sheet for this budget compared to that for the average of the 41 full-time farm situations is shown in Table 12. Relative to the average full-time operation on these farms, the budgeted operation, through increasing invested capital by about 16 percent, farm expenses by 190 percent (which includes a $2,000 allowance for depreciation) and farm receipts by 176 percent, yielded a net farm or family income of 151 percent.

This type of adjustment might have been feasible for a limited number of the operators on the farms included in this study. However, the inability to achieve the "if conditions" stated above, as indicated by the levels of production achieved when farming full time, awareness of managerial limitations, and reluctance to assume further indebtedness led these operators to the part-time farming alternative in an effort to increase net family income.

Give Up Farming Entirely

Suppose these families were to give up the farm operation entirely and depend on their nonfarm wages plus investment income from the capital now invested in the farming operation. How would this alternative compare with the realized income from part-time farming?

The 1956 land holdings of these operators averaged 82 acres worth about $25,000 at current land prices. They had an additional investment of about $15,000 in machinery and equipment, livestock, feed and supply inventory, etc. Although specific inquiry was not directed to the question of debts, the frequent reference to this as a factor in the decision to seek off-farm work would indicate the average investment per farm of about $40,000 was rather heavily encumbered. A realistic assumption under these conditions might be that these families had an average net investment in the farming operation of $30,000.

Insofar as most of these families owned farm real estate, it would appear logical to assume they would want also to own their own residence, either in town or in a rural area. A comparable residence would cost approximately $15,000, leaving about $15,000 for investment. If this money were invested at 5 percent,[1/] about $750 annual return could be added to the family income earned from employment.

This investment return of about $750 could be compared to the net return from the part-time farm operation of almost $2,000. However, the net family farm income of $1,940 is payment for family labor as well as a return on invested capital. Could this labor have been more productively employed elsewhere?

1/ Various alternative investments would carry different rates of interest--bank deposits or government bonds, 3-4 percent; stocks, 3-7 percent; or the farm might be sold with a land contract or mortgage with 5-6 percent interest on the balance due.

The 41 operators reported an average of 220 days nonfarm employment for which they received approximately $18.00 per day.[1/] It might be assumed that without the farm operation, those operators working off the farm less than 250 days might have been able to increase their nonfarm employment to the 250-day level. This added 30 days of nonfarm work at the going wage and would have increased gross nonfarm income by about $540.

By going entirely to nonfarm employment and investing the capital withdrawn from farming, these families thus might have achieved an average income of about $5,825 ($5,073 in wages plus $750 return on investment) compared with the realized income of $6,473 ($4,533 in wages plus $1,940 net farm income) from part-time farming operations.

Numerous other assumptions might be made regarding farm family adjustments to nonfarm employment opportunities--sell the farm operation and rent rather than buy another house; sell machinery, livestock; pay off debts; rent out land but continue to live in the farm residence; etc. One of these alternatives might be the most profitable for some operators, another for someone else.

None of these alternatives seem to possess enough economic advantage to attract and motivate these operators, with an expressed preference for farm living, to change their intentions of continuing to operate their farms part time.

1/ The rate of earnings reported by the operator was not substantially different from the average wage of all Ohio production workers in manufacturing establishments of $2.21 per hour or $90.81 per week in 1956, as published in U. S. Statistical Abstract.